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PETROLOGICAL ABSTRACTS AND REVIEWS

ALBERT JOHANNSEN

SOSMAN, R. B., and MERWIN, H. E. "Data on the Intrusion Temperature of the Palisade Diabase," *Jour. Wash. Acad. Sci.*, III (1913), 389–95.

Slabs of the underlying Newark shale and arkosic sandstone have in many cases been "floated" up into the igneous rock of the Palisade diabase of New York and New Jersey, apparently while the latter was still liquid. This paper deals with studies made of the comparative fusion points of the diabase and the arkose. The former begins to melt at 1,150° but does not flow till 1,225°, while most of the latter is fused at 1,150°. The inclusions in the Palisade diabase, however, show no trace of fusion, and the authors conclude that the fusion point of the diabase was lowered by mineralizers at the time of the intrusion.

SPETHMANN, HANS. *Islands grösster Vulkan. Die Dyngjufjöll mit der Askja.* Leipzig: Veit & Co., 1913. Pp. 143, figs. 36, bibliography.

The author gives first a summary of work previously done in this region, including an account of von Knebel's ill-fated expedition. He then tells of the development of the maps of this region, describes the forms of relief, the climate, and the vegetable and animal life.

The volcano Dyngjufjöll lies east of the central part of Iceland. Its crater, Askja, is the largest in the island, and has a fairly flat bottom of from 55 to 60 square kilometers. In the southeastern portion of this crater bottom is a lake, Knebel Sea, covering about one-fifth of the area, and at its northeast shore is an active crater, Rudloff Crater. Southwest of the lake is a solfatara field. The mountain owes its origin to volcanic eruptions from a conduit within the area of Askja. The material ejected was fragmental, but later was followed by a lava flow which filled the cauldron with a sea of lava and caused overflows at several points. There were various fluctuations of the surface of this flow, the last one being a sinking of the level from 40 to 50 meters. In January and March, 1855, there were eruptions of fragmental materials, and at the same time several large areas of the crater bottom, near the Knebel Sea, settled and filled with water from this lake.

TYRRELL, G. W. "A Petrographical Sketch of the Carrick Hills, Ayrshire," *Trans. Geol. Soc. Glasgow*, XV (1913), 64–83, pls. 2.

Geological description of the upland region on the shore of the Firth of Clyde near Ayr. The hills consist of a series of lava flows of Old Red Sandstone age, and are composed of extrusive andesites and basalts and intrusive dolerites and *plagiophyres*, the latter term applied to plagioclase rocks analogous to the orthoclase-bearing *orthophyres*.

TYRRELL, G. W. "The Petrology of Arran," *Geol. Mag.*, X (1913), 305–9.

Riebeckite-orthophyre or riebeckite-trachyte is described from the Holy Isle, near Arran, and crinanites or olivine-analcite-dolerites, from Whiting Bay and Dippin.

TYRRELL, G. W., FERGUSON, D., and GREGORY, J. W. "The Geology of South Georgia," *Geol. Mag.*, I (1914), 53–64.

A description of the general geology of the island of South Georgia, 900 miles southeast of the Falkland Islands. The only igneous rocks found were certain crystal tuffs of andesitic, latitic, and trachytic character, an intrusive diabase or ophitic gabbro, and a quartz-monzonite-porphyry, the latter a fragment picked up from a moraine.

TYRRELL, G. W. "The Petrology of South Georgia," *Trans. Roy. Soc. Edinburgh*, L (Part iv), No. 25, 1915, 823–36, pl. 1.

This is a detailed petrographic description of the sediments and igneous rocks mentioned in the above paper. The rock previously determined as quartz-monzonite-porphyry is here called granite-porphyry.

USSING, N. V. "Geology of the Country around Julianehaab, Greenland." *Meddelelser om Grönland*, XXXVIII (1911). Pp. 370, figs. 28, maps and secs. 6, pls. 12, chemical analyses.

The southern third of Greenland is extremely poor in sedimentary rocks, only two small areas of post-Archean sediments being found in addition to certain Quaternary loam, sand, and gravel deposits. By a comparison with the sediments of northeast Canada, however, the order of succession of the various rocks may be inferred: Archean gneisses and schists, Algonkian(?) granites, diorites, etc., Devonian plutonic rocks and volcanic sheets, and Quaternary moraines and alluvium. The most widely distributed rock in this region is a hornblende-bearing biotite-granite. The Devonian sheets are trachydolerites and alkali-trachyte. The later abyssal rocks are granites, syenites, nephelite-syenites, gabbros, and essexites, and of these all but the gabbros and essexites, which form small bosses, occur as batholiths. The nephelite-syenites are represented by lujavrites and other rare types, several of which have been given new names.

Naujaite is a sodalite-syenite, but since the latter term was used for rocks of quite different characters by Steenstrup, Lindgren, and Hibsch, the new name is proposed for a nephelite-syenite rich in sodalite, and having a peculiar poikilitic texture. The mode, computed from the chemical analysis and compared with the thin section, gives for two different specimens: sodalite 31 (54), nephelite 18 (5), eudialyte 3 (2), microcline 20 (6), albite 10 (—), ainigmatite —(2), aegirite 10 (12), arfvedsonite 1 (5), analcite 7 (14).

Sodalitite is almost exclusively made up of sodalite with very small amounts of aegirite, feldspar, and eudialyte.

Kakortokite is a coarse grained, trachytoid (foyaitic) nephelite-syenite. It differs from ordinary foyaite in its high percentage of dark constituents. Three varieties are described: black, white, and red. The minerals are eudialyte, alkali-feldspar, nephelite, arfvedsonite, and aegirite. Sodalite, ainigmatite, biotite, rinkite, fluorite, and epistolite, as well as zeolites, may be present. The chief minerals in the black rock are aegirite and arfvedsonite. They are present in about equal amounts and, while very abundant in other cases, make up 65 per cent of the black rock. The chief mineral of the white rock is microline-microperthite, the chief mineral of the red, eudialyte.

Agpaite is a general name given to the rocks occurring at Ilimausak, and includes the sodalite-foyaite, naujaite, lujavrite, and kakortokite.

VALETON, J. J. P. "Kristallform und Löslichkeit." *Ber. math-phys. Kl. kön. sächs. Gesell. Wiss.*, Leipzig. LXVII (1915), No. 78, pp. 59, figs. 10, pl. 1.

Determines that there is no difference in the solubility of alum in different directions. The laws of growth and solution must be explained on different grounds than solubility differences.

VAN ORSTRAND, C. E., and WRIGHT, FRED. E. "The Calculation and Comparison of Mineral Analyses," *Jour. Wash. Acad. Sci.*, IV (1914), 514–25.

Various methods for adjusting chemical analyses are discussed, and the conclusion is reached that the present method of direct comparison of weight percentages of chemical analyses is sufficiently accurate.

VISCONT, K. *On the Fluidal Texture of Some Dike Rocks from the Neighborhood of the Granite Stock of Turgojak in the Slatoust Mining District of the Ural Mountains.* 1913. Pp. 14. (In Russian language.)

The granite intrusion of Turgojak cuts metamorphosed Paleozoic schists. Both the granite body and the country rocks are cut by two series of dikes following tectonic lines.

WADA, T., Editor. *Beiträge zur Mineralogie von Japan*, No. 5, Tokyo, 1915. Pp. 201–5, numerous figures.

Contains miscellaneous mineralogical papers by K. Jimbo, N. Fukuchi, M. Suzuki, W. Watanabe, M. Kawamura, K. Nakashima, and others.

WARREN, CHARLES H. "The Ilmenite Rocks near St. Urbain, Quebec," *Amer. Jour. Sci.*, XXXIII (1912), 263–77, fig. 1.

The writer describes a rutile-ilmenite rock from St. Urbain, Quebec, which he proposes to call *urbainite*. Two specimens give rutile 20.4 (11.3), ilmenite-hematite 73.2 (84.5), sapphirine 3.2 (0.7), remainder 3.2 (3.2).

WARREN, CHARLES H. "Petrology of the Alkali-Granites and Porphyries of Quincy and the Blue Hills, Mass., U.S.A.," *Proc. Amer. Acad. Arts and Sci.*, XLIX (1913), 203–330, pls. 2, sketch maps 2, chemical analyses.

The alkaline granitic magma of Quincy and the Blue Hills is believed by the author to have been intruded by stoping after Middle Cambrian but before late Carboniferous times. Having nearly reached the surface, the upper portions are rather vitreous while lower portions are more crystalline and appear as granite-porphyries. Still lower the rock is a fine-grained granite. In one portion of the field the marginal phase is broken up and intruded by later material. Locally there is a more basic phase where the magma differentiated against the slate or even under its own cover, and the rock is rhombic porphyry. No complementary dikes occur in the region.

WARREN, CHARLES H. "A Quantitative Study of Certain Perthitic Feldspars," *Proc. Amer. Acad. Arts and Sci.*, LI (1915), 127–54, fig. 1.

Micrometric readings and calculations from analyses of eight perthites show microcline 52.3–86.2 to albite 47.7–13.8 per cent by weight. The author comes to the conclusion held by Vogt, that perthitic structure in primary potassic feldspar, where the amount of albite is less than *ca.* 28 per cent, is due to the unmixing of previously homogeneous mixed crystals.

WARREN, CHARLES H., and POWERS, SIDNEY. "Geology of the Diamond Hill–Cumberland District in Rhode Island–Massachusetts," *Bull. Geol. Soc. Amer.*, XXV (1915), 435–76, figs. 3.

Gives a geological history of the region, and describes gabbro, cumberlandite, serpentine, labradorite-porphyry, quartz-diorite, granite, riebeckite-aegirite-granite, felsite, and various porphyries.

WASHINGTON, HENRY S. "The Volcanic Cycles in Sardinia." *Cong. géol. internat.* Canada, 1913. Pp. 11.

A preliminary statement of some of the general petrological relationships of the igneous rocks of Sardinia, and the bearing of these on certain phases of magmatic differentiation.

WASHINGTON, HENRY S., and LARSEN, E. S. "Magnetite basalt from North Park, Colorado," *Jour. Wash. Acad. Sci.*, III (1913), 449–52, analysis.

A brief description of a peculiar basalt from Colorado which contains 55 per cent of iron ore. It is the only known example of extruded lava so high in iron.